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| EXAMINER | |
|---|---|
| WEBB, GREGORY E | |
| **ART UNIT** | **PAPER NUMBER** |
| 1751 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | NOTIFICATION DATE | DELIVERY MODE |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/05/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

| Office Action Summary | Application No. 10/650,918 | Applicant(s) IKEDA ET AL. | |
|---|---|---|---|
| | Examiner Gregory E. Webb | Art Unit 1751 | |

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *17 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-5 and 8-10* is/are pending in the application.

4a) Of the above claim(s) *5* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 8-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. The applicant states the following "the process as defined in claim 1." When in reality claim 1 defines a compound and not a process.

4. Furthermore claim 8 now fails to limits the parent claim as claim 1 already claims the deinking agent.

### *Response to Arguments*

1. Applicant's arguments filed 11/17/06 have been fully considered but they are not persuasive.

2. The applicant's main argument, repeated several times suggests that the prior art teaches oils which are excluded by the instant claims.

3. First, the applicant's claims are to a "deinking agent" and not a process (see above for 112 rejection). The process the deinking agent is produced is not a limitation of this compound claim. The applicant's confusion is clearly illustrated by newly added claim 8.

4. Second, the applicant's claim does not exclude oils. Nor has the applicant provided any evidence that oils are excluded. The applicant's arguments are not substitute for evidence.

5. And finally, the applicant is confusing the prior art teaching of fatty acids with oils. For example in Uphues et al (US 5,442,082) both the teachings cited and the examples all teach fatty acids. These are fatty acids and not oils. Fatty acids are a type of carboxylic acid exactly as described and required by the instant claims.

6. Similarly the applicant argues that Miyauchi et al (US 5,801,134) teaches fats and oil. However, as can be seen below Miyauchi is clearly teaching carboxylic acids:

> "(21) Among the higher fatty acids, the saturated fatty acids include lauric acid, myristic acid, palmitic acid, stearic acid, arachic acid, and behenic acid. The unsaturated fatty acids include palmitoleic acid, oleic acid, elaidic acid, linoleic acid, linolenic acid, erucic acid, and ricinolic acid. The kind and addition molar number of AO are the same as those described above."

Therefore, based on these three points, the examiner is extremely unconvinced by the applicant's arguments.

It should also be noted that the applicant's labeling of the claims are incorrect. Claim 5 was restricted, chosen as non-elected and is now mislabeled.

### *Claim Rejections - 35 USC § 102*

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-4, and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Daute, Peter (US5442082).

Concerning the esterifying, carboxylic acid, fatty acid and the transesterification, Daute, Peter teaches the following:

> Examples of unsaturated C.sub.10-22 **carboxylic acid** C.sub.1-18 alkyl esters, which may be obtained in known manner by **esterification** of the corresponding unsaturated **carboxylic acid**s or by trans**esterification** of the corresponding mono-, di- and/or triglycerides with C.sub.1-18 alkyl alcohols, for example methanol, ethanol, propanal, butanol, isobutanol, 2-ethyl hexanol, decanol and/or stearyl alcohol, are palmitoleic acid methyl ester, oleic acid methyl ester, oleic acid ethyl ester, oleic acid isobutyl ester, oleic acid 2-ethyl hexyl ester and/or oleic acid decyl ester and/or C.sub.10-22 **carboxylic acid** C.sub.1-18 alkyl ester mixtures having at least a high content of C.sub.10-22 **carboxylic acid** C.sub.1-18 alkyl esters containing at least one or two double bonds in the 9- and/or 13-position in the **carboxylic acid** residues, such as palm oil **fatty acid** methyl ester, soybean oil **fatty acid** methyl ester, soybean oil **fatty acid** 2-ethyl hexyl ester, rapeseed oil **fatty acid** methyl ester and/or **tallow fatty acid** ethyl ester. Particularly suitable mono-, di- and/or triglycerides containing OH-group-free, unsaturated C.sub.10-22 carboxylic acid residues with at least one or two double bonds in the 9- and/or 13-position are fats and/or oils of natural origin, of which the **carboxylic acid** content is mainly made up of unsaturated C.sub.10-22 **carboxylic acid**s with at least one or two double bonds in the 9- and/or 13-position, preferably mainly of unsaturated C.sub.16-22 **carboxylic acid**s with at least one or two double bonds in the 9- and/or 13-position, such as olive oil, linseed oil, sunflower oil, safflower oil, soybean oil, peanut oil, cottonseed oil, high-erucic and/or low-erucic rapeseed oil, palm oil, lard and/or **tallow**. (*emphasis added*)

Concerning the alkylene oxide, trihydric alcohol, polyhydric alcohol and the synthesis, Daute, Peter teaches the following:

> The alkoxylated compounds according to the invention are produced by conventional organic **synthesis** methods, namely by **reaction** of epoxidized C.sub.10-22 carboxylic acid derivatives with C.sub.2-4 **alkylene oxides** in the presence of alkoxylation catalysts, for example sodium methylate and/or potassium hydroxide, and mono- and/or **polyhydric alcohols** at temperatures of preferably 150.degree. to 190.degree. C. and under pressures of preferably 3.multidot.10.sup.5 to 9.multidot.10.sup.5 Pa. The **alkylene oxides** are used in such quantities that the **alkylene oxide** content of the alkoxylated compounds obtained is preferably between 20 and 90% by weight and more preferably between 40 and 80% by weight. Ethylene oxide and/or **propylene oxide** are preferably used as the C.sub.2-4 alkylene oxides. Where **ethylene oxide** and **propylene oxide** are used, the two **alkylene oxides** may be added to the **reaction** mixture simultaneously or in succession. The mono- and/or **polyhydric alcohols** are preferably used in quantities of 0.1 to 2.0% by weight and more preferably in quantities of 0.2 to 1.0% by weight, based on one epoxide group. Suitable mono- and/or **polyhydric alcohols** are linear and/or branched C.sub.1-18 alkyl alcohols, for example methanol, ethanol and/or stearyl alcohol, optionally alkoxylated with 1 to 30 mol C.sub.2-4 **alkylene oxide** units, linear and/or branched alkanediols, for example ethylene glycol, propane-1,2-diol, propane-1,3-diol, butane-1,4-diol, hexane-1,6-diol and/or dodecane-1,12-diol, optionally alkoxylated with 1 to 30 mol C.sub.2-4 **alkylene oxide** units, **glycerol**, di**glycerol**, poly**glycerol**, trimethylol propane, pentaerythritol and/or sugar alcohols, such as mannitol and/or sorbitol. (*emphasis added*)

Concerning the deinking, Daute, Peter teaches the following:

> (1) fiberizing said wastepaper in an aqueous alkaline **deinking** solution containing a **deinking** effective quantity of an alkoxylated compound prepared by reacting an epoxidized C.sub.10 -C.sub.22 carboxylic acid derivative with a C.sub.2 -C.sub.4 alkylene oxide in the presence of an alkaline alkoxylation catalyst and a polyhydric alcohol to detach ink particles from said wastepaper, and (*emphasis added*)

Claims 1-4, and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamaguchi, Koji (US5801135).

Concerning the esterifying, Hamaguchi, Koji teaches the following:

> The polyhydric alcohol fatty acid ester has an **esterification** degree of 30 to 100%, preferably 60 to 100%. (*emphasis added*)

Concerning the alkylene oxide, Hamaguchi, Koji teaches the following:

> 3. A deinking composition as described in claim 1, wherein the nonionic surfactant (b) contains alkylene oxide adducts of saturated or unsaturated, primary or secondary alcohols having 8 to 24 carbon atoms or alkylene oxide adducts of alkylphenols having 8 to 12 carbon atoms in the alkyl moieties, alkylene oxide adducts of saturated or unsaturated higher fatty acids having 10 to 24 carbon atoms, alkylene oxide adducts of saturated or unsaturated, primary or secondary amines having 8 to 36 carbon atoms, or **alkylene oxide adducts of the mixtures of polyhydric alcohols having 2 to 10 hydroxyls and oils and fats in which the saturated or unsaturated fatty acid moieties have 8 to 24 carbon atoms**. (*emphasis added*)

Concerning the trihydric alcohol, carboxylic acid, fatty acid and the polyhydric alcohol, Hamaguchi, Koji teaches the following:

> In particular, a **polyhydric alcohol** portion of the **polyhydric alcohol** fatty acid ester is preferably **glycerine**, di**glycerine**, or poly**glycerine** (poly**glycerine** having 6 to 30 carbon atoms) having an average polymerization degree, which is calculated from a hydroxyl group value, of 2 to 12, preferably 4 to 10. The **fatty acid** constituting the polyhydric alcohol **fatty acid** ester is preferably saturated or (poly) unsaturated **fatty acid** having total 10 to 24 carbon atoms, and mixed **fatty acids** rather than single **fatty acid** are preferably used. More preferably used is the mixture of unsaturated **fatty acids** such as oleic acid and linolenic acid with saturated **fatty acids** containing palmitic acid and **stearic** acid as the essential components. (*emphasis added*)

Concerning the deinking, Hamaguchi, Koji teaches the following:

> The present invention relates to a **deinking** composition used in recycling waste papers such as newspapers and magazines, more specifically to a **deinking** composition which can provide a high quality **deink**ed pulp having a high brightness and a low **residual ink** in a **deinking** treatment of waste papers by floatation and a floatation/washing combination system. (*emphasis added*)

Concerning the synthesis, Hamaguchi, Koji teaches the following:

> 2. A deinking composition as described in claim 1, wherein the nonionic surfactant (b) contains compounds obtained by a random-addition **reaction** or block-addition **reaction** or both of alkylene oxide having 2 to 4 carbon atoms with alcohols, amines or fatty acids, wherein said alcohols, amines or fatty acids have hydrogens activated for said addition **reaction**, or fatty esters thereof. (*emphasis added*)

Claims 1-4, and 8-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Ikeda, Yasushi (US6599392).

Concerning the esterifying, alkylene oxide, carboxylic acid, fatty acid, polyhydric alcohol and the synthesis, Ikeda, Yasushi teaches the following:

> The ester compound of the present invention may be obtained by carrying out of conventionally known **esterification** and adding of **alkylene oxide**. For example, a mixture of a **fatty acid** and a **polyhydric alcohol** is, if necessary, admixed with an **esterification** catalyst and reacted at 150 to 250.degree. C. to obtain an ester compound (A), to which an **alkylene oxide** is added in the presence of an alkaline catalyst, whereby obtaining an **alkylene oxide** adduct (B). Alternatively, an **esterification reaction** may be carried out, after an **alkylene oxide** is added to a **fatty acid** or a **polyhydric alcohol**. Furthermore, it can be sometimes obtained by only adding an **alkylene oxide** to a **fatty acid**, too. (*emphasis added*)

Concerning the trihydric alcohol, Ikeda, Yasushi teaches the following:

> A polyhydric alcohol as a constituent of an ester compound in the present invention is preferably a 2- to 14-hydric alcohol having 2 to 24 carbon atoms in total which may contain an ether group. A 2-hydric (dihydric) alcohol may be one which has 2 to 10 carbon atoms in total and which may contain an ether group, such as propylene glycol, dipropylene glycol, butylene glycol, dibutylene glycol, ethylene glycol, diethylene glycol and polyethylene glycol. Then, 3-(tri) or more hydric alcohol may be one which has 3 to 24 carbon atoms in total, which may contain an ether group and wherein the total number of hydroxy group/the total number of carbon atoms=0.4 to 1 in one molecule, such as **glycerol**, poly(n=2 to 5)**glycerol**, pentaerythritol, dipentaerythritol, arabitol, sorbitol, stachyose, erythrite, arabite, mannite, glucose and sucrose. Preferably, there are ethylene glycol, diethylene glycol, propylene glycol, and an alcohol which has 3 to 12 carbon atoms in total, which may contain an ether group, wherein the total number of hydroxy group/the total number of carbon atoms=0.5 to 1 in one molecule, and which is 3- or more hydric alcohol. More preferably, there are **glycerol**, poly (n=2 to 4) **glycerol** and pentaerythritol. (*emphasis added*)

Concerning the deinking, Ikeda, Yasushi teaches the following:

> A **deink**ed pulp was obtained in the following manner. To feedstock waste papers collected in the city (newspaper/leaflet=70/30%) were added warm water, 1% (based on the feedstock) of sodium hydroxide (based by weight, this is true hereinafter), 3% (based on the feedstock) of sodium silicate, 3% (based on the feedstock) of a 30% aqueous hydrogen

> peroxide solution, and 0.3% (based on the feedstock) of EO/PO block adduct of beef tallow/glycerol (1:1), as a **deinking** agent, in which the amounts of EO and PO were respectively 70 and 10 (average number of moles added). The feedstock was brushed out and then subjected to flotation. The resultant slurry was washed with water and regulated to a concentration of 1% to prepare a **deink**ed pulp slurry. This had a freeness of 220 ml. (*emphasis added*)

Claims 1-4, and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Irinatsu, Yuichi (US6179957).

Concerning the esterifying, alkylene oxide, carboxylic acid and the synthesis, Irinatsu, Yuichi teaches the following:

> The nonionic surfactant (B) is prepared by adding an **alkylene oxide** to a **fatty acid** by a conventional method, optionally followed by **esterification** or acylation. The **alkylene oxide** is added to a **fatty acid** in an amount, on the average, of 5 to 300 moles, preferably 10 to 150 moles, per mole of the **fatty acid**. That is, the nonionic surfactant (B) is generally a **reaction** product mixture comprising compounds each represented by the above-mentioned formula: RCOO(AO).sub.m R'. Examples of the **alkylene oxide** include those mentioned in the above explanation relating to the nonionic surfactant (A). It is preferred to use **ethylene oxide** and **propylene oxide** in a molar ratio of **ethylene oxide** to **propylene oxide** of 1/5 to 5/1 in the production of nonionic surfactant (B). (*emphasis added*)

Concerning the trihydric alcohol and the polyhydric alcohol, Irinatsu, Yuichi teaches the following:

> Examples of the **polyhydric alcohol**s as a starting material of the nonionic surfactant (A) include ethylene glycol, propylene glycol, trimethylene glycol, butylene glycol, 1,6-hexane glycol, 2-ethylbutane-1,2,3-**triol**, **glycerol**, trimethylolpropane, trimethylolethane, 1,2,4-butane**triol**, 1,2,6-hexane**triol**, 1,1,1-trimethylolhexane, tetramethylolcyclohexanol, di**glycerol**, mannitane, pentaerythritol, erythritol, arabitol, sorbitol, D-glycero-D-galactoheptose, D-glycero-D-glucoheptose, D-glycero-D-mannoheptose, D-glycero-L-mannoheptose, D-altroheptulose, D-mannoheptulose, D-altro-3-heptulose, D-glycero-D-galaheptitol, D-erythro-D-galaoctitol, D-glycero-D-mannooctulose, D-erythro-L-glononulose, cellobiose, maltose, lactose, gentianose, cellotriose, and stachyose. Preferred are ethylene glycol, propylene glycol, **glycerol**, and trimethylolpropane. (*emphasis added*)

Concerning the fatty acid, Irinatsu, Yuichi teaches the following:

> Examples of the **fatty acids** to be used for producing the nonionic surfactant (B) include those having an alkyl or alkenyl moiety, corresponding to R, of 7 to 23 carbon atoms, and specific examples thereof include caprylic acid, pelargonic acid, capric acid, undecanoic acid, lauric acid, tridecanoic acid, myristic acid, pentadecanoic acid, palmitic acid, margaric acid, **stearic** acid, oleic acid, elaidic acid, linoleic acid, linolenic acid, stearolic acid, ricinoleic acid, ricinoelaidic acid, nonadecanoic acid, arachidic acid, heneicosanoic acid, behenic acid, brassidic acid, erucic acid, tricosanoic acid, tetracosanoic acid, coconut oil **fatty acid**, beef **tallow fatty acid**, palm oil **fatty acid**, **tall oil fatty acid**, rape oil **fatty acid**, and fish oil **fatty acid**. Among nonionic surfactants (B), those having an alkyl or alkenyl group, particularly an alkyl group, represented by R of 11 to 23 carbon atoms are preferred. (*emphasis added*)

Concerning the deinking, Irinatsu, Yuichi teaches the following:

> A **deinking** agent for use in the ink stripping step and the **ink removal** step has hitherto been required to have different properties for the respective steps. Specifically, a **deinking** agent for use in the ink stripping step is required to improve the wettability and permeability of pulp with ink and increase the ink-stripping power while having excellent ink-dispersing properties in order to prevent redeposition. On the other hand, a **deinking** agent for use in the **ink removal** step is required to have a foaming power and foam-breaking properties in the course of washing. (*emphasis added*)

Claims 1-4, and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamaguchi, Koji (US4964949).

Concerning the alkylene oxide and the polyhydric alcohol, Hamaguchi, Koji teaches the following:

> The **alkylene oxides** to be added to the mixture of said natural oil or fat and **polyhydric alcohol** include, for example, **ethylene oxide**, propylene oxide and butylene oxide. The **alkylene oxide** adducts can be prepared by mixing the **alkylene oxide** with said mixture (random addition) or by the successive addition (block addition). The random addition or block addition of **ethylene oxide** and an **alkylene oxide** other than **ethylene oxide** are preferred. (*emphasis added*)

Concerning the trihydric alcohol, Hamaguchi, Koji teaches the following:

> The polyhydric alcohols used in the present invention include ethylene glycol, propylene glycol, trimethylene glycol, butylene glycol, **glycerol**, trimethylolpropane, trimethylolethane, 1,2,4-butane**triol**, 1,2,6-hexane**triol**, 1,1,1-trimethylolhexane, pentaerythritol, tetramethylolcyclohexanol and di**glycerol**. (*emphasis added*)

Concerning the carboxylic acid, fatty acid and the deinking, Hamaguchi, Koji teaches the following:

> It is important that the higher **fatty acid**s used in the present invention have 8 to 22, preferably 8 to 18, carbon atoms. When the number of carbon atoms is less than 8, the ink-coagulating effects are reduced, while and when it exceeds 22, the **deinking** effects are reduced. Examples of the **fatty acid**s having 8 to 22 carbon atoms include caprylic, capric, lauric, myristic, palmitic, **stearic** and oleic acids. The higher **fatty acid**s include not only those having a given carbon number but also mixtures of these acids having various carbon numbers, such as beef **tallow fatty acid**s or coconut **fatty acid**s. (*emphasis added*)

Concerning the synthesis, Hamaguchi, Koji teaches the following:

> 7. A composition as claimed in claim 1, in which (a) is a **reaction** product obtained by the block addition of ethylene oxide and propylene oxide, having a molar number of ethylene oxide to propylene oxide of 50 to 20, to a mixture of palm oil and glycerol having a molar ratio of palm oil to glycerol of 1 to 0.5 and (b) is C.sub.12 H.sub.25 O(EO).sub.1 SO.sub.3 Na, wherein the weight ratio of a to b ranges from 90/10 to 80/20. (*emphasis added*)

Claims 1-4, and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Irinatsu, Yuichi (US6103056).

Concerning the esterifying, alkylene oxide, carboxylic acid and the synthesis, Irinatsu, Yuichi teaches the following:

> The nonionic surfactant (B) is prepared by adding an **alkylene oxide** to a **fatty acid** by a conventional method, optionally followed by **esterification** or acylation. The **alkylene oxide** is added to a **fatty acid** in an amount, on the average, of 5 to 300 moles, preferably 10 to 150 moles, per mole of the **fatty acid**. That is, the nonionic surfactant (B) is generally a **reaction** product mixture comprising compounds each represented by the above-

> mentioned formula: RCOO(AO).sub.m R'. Examples of the **alkylene oxide** include those mentioned in the above explanation relating to the nonionic surfactant (A). It is preferred to use **ethylene oxide** and **propylene oxide** in a molar ratio of **ethylene oxide** to **propylene oxide** of 1/5 to 5/1 in the production of nonionic surfactant (B). (*emphasis added*)

Concerning the trihydric alcohol and the polyhydric alcohol, Irinatsu, Yuichi teaches the following:

> Examples of the **polyhydric alcohol**s as a starting material of the nonionic surfactant (A) include ethylene glycol, propylene glycol, trimethylene glycol, butylene glycol, 1,6-hexane glycol, 2-ethylbutane-1,2,3-**triol**, **glycerol**, trimethylolpropane, trimethylolethane, 1,2,4-butane**triol**, 1,2,6-hexane**triol**, 1,1,1-trimethylolhexane, tetramethylolcyclohexanol, di**glycerol**, mannitane, pentaerythritol, erythritol, arabitol, sorbitol, D-glycero-D-galactoheptose, D-glycero-D-glucoheptose, D-glycero-D-mannoheptose, D-glycero-L-mannoheptose, D-altroheptulose, D-mannoheptulose, D-altro-3-heptulose, D-glycero-D-galaheptitol, D-erythro-D-galaoctitol, D-glycero-D-mannooctulose, D-erythro-L-glononulose, cellobiose, maltose, lactose, gentianose, cellotriose, and stachyose. Preferred are ethylene glycol, propylene glycol, **glycerol**, and trimethylolpropane. (*emphasis added*)

Concerning the fatty acid, Irinatsu, Yuichi teaches the following:

> Examples of the **fatty acid**s to be used for producing the nonionic surfactant (B) include those having an alkyl or alkenyl moiety, corresponding to R, of 7 to 23 carbon atoms, and specific examples thereof include caprylic acid, pelargonic acid, capric acid, undecanoic acid, lauric acid, tridecanoic acid, myristic acid, pentadecanoic acid, palmitic acid, margaric acid, **stearic** acid, oleic acid, elaidic acid, linoleic acid, linolenic acid, stearolic acid, ricinoleic acid, ricinoelaidic acid, nonadecanoic acid, arachidic acid, heneicosanoic acid, behenic acid, brassidic acid, erucic acid, tricosanoic acid, tetracosanoic acid, coconut oil **fatty acid**, beef **tallow fatty acid**, palm oil **fatty acid**, **tall oil fatty acid**, rape oil **fatty acid**, and fish oil **fatty acid**. Among nonionic surfactants (B), those having an alkyl or alkenyl group, particularly an alkyl group, represented by R of 11 to 23 carbon atoms are preferred. (*emphasis added*)

Concerning the deinking, Irinatsu, Yuichi teaches the following:

> As a result of further detailed investigations on the interfacial potentials and the **deinking** performance in the flotation step on the basis of the foregoing finding, the inventors of the present invention have found out that there is a correlation between the interfacial potentials of ink particles and pulp and the results of **deinking** (the bulk density of the pulp sheet in particular) in the flotation step. Specifically, in an arbitrary **deinking**

> process including the flotation step, when the desired results are obtained, the interfacial potentials of ink and pulp are measured to select suitable ranges of the interfacial potentials in the system, the final results of **deinking** can be estimated only by observing whether or not the interfacial potentials in the system fall within these suitable ranges. In other words, it can be judged that the results of **deinking** obtained by this **deinking** treatment can be excellent when, for example, the interfacial potentials (.xi. potentials) of ink particles and pulp in the flotation step are -5 mV to -60 mV and -15 mV to +15 mV, respectively, with a difference of at least 10 mV in interfacial potential as the .xi. potential between the ink particles and the pulp as described above. When the interfacial potentials of the ink particles and the pulp are outside these ranges to the contrary, it may be estimated that the results of **deinking** are poor. This method of the present invention for estimating the results of **deinking** from the interfacial potentials of ink particles and pulp in the flotation step is so highly reliable that it becomes an effective means for controlling the **deinking** treatment in the operation of real equipment. (*emphasis added*)

Claims 1-4, and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Ikeda, Yasushi (US6565708).

Concerning the esterifying, alkylene oxide, carboxylic acid, fatty acid, polyhydric alcohol and the synthesis, Ikeda, Yasushi teaches the following:

> This ester can be obtained by carrying out a publicly known **esterifying reaction** and **alkylene oxide** addition **reaction**. For example, a mixture of the **fatty acid** and the **polyhydric alcohol** is, if necessary an **esterifying** catalyst is added thereto, reacted at 150 to 250.degree. C. to obtain an ester. Further, an **alkylene oxide** having 2 to 4 carbon atoms is added thereto in the presence of an alkali catalyst or the like, to obtain the **alkylene oxide**-added ester. On the other hand, an alkylene oxide may be added to the **fatty acid** or the **polyhydric alcohol** to be esterified. In some case, the ester can be obtained by only adding an **alkylene oxide** to the **fatty acid**. (*emphasis added*)

Concerning the trihydric alcohol, Ikeda, Yasushi teaches the following:

> The polyhydric alcohol which composes a compound of (A8) or (A9) is preferably a 2- to 14-hydric alcohol which may have an ether group and wherein the total number of carbon atoms is 2 to 24; more preferably a 2- to 8-hydric alcohol; and particularly preferably a 3- to 6-hydric alcohol. The dihydric alcohol may be exemplified as an alcohol which may have an ether group and wherein the total number of carbon atoms is 2 to 10. For example, it is propylene glycol, dipropylene glycol, butylene glycol, dibutylene glycol, ethylene glycol, diethylene glycol or polyethylene glycol.

> The tri- or more-hydric alcohol may be exemplified as an alcohol which may have an ether group, wherein the total number of carbon atoms is 3 to 24 and wherein the total number of hydroxyl groups/the total number of carbon atoms in one molecule is 0.4 to 1. For example, it is **glycerol**, poly**glycerol** (average condensation degree: 2 to 5), pentaerythritol, dipentaerythritol, arabitol, sorbitol, stachyose, erythrite, mannite, glucose or sucrose. There may be more preferable ethylene glycol, diethylene glycol, polyethylene glycol or a tri- or more-hydric alcohol which may have an ether group, wherein the total number of carbon atoms is 3 to 12 and wherein the total number of hydroxyl groups/the total number of carbon atoms in one molecule is 0.5 to 1. There maybe particularly preferable **glycerol**, poly**glycerol** (average condensation degree: 2 to 4) or pentaerythritol. (*emphasis added*)

Concerning the deinking, Ikeda, Yasushi teaches the following:

> From the viewpoint of conservation of the environment in earth, a reduction in the used amount of pulp is demanded. As a result, it has been demanded to make paper light and to increase the blending amount of **deink**ed pulp. However, paper obtained by merely reducing the amount of pulp in the paper becomes thin so that its opacity becomes low. Thus, its quality becomes poor. According to the lightening of paper based on reducing the amount of pulp, about paper for which stiffness in proportion to cube of thickness is required, such as paperboard, its stiffness is unfavorably lowered. On the other hand, if the blending ratio of **deink**ed pulp is raised, brightness is lowered by **remaining ink** or the like in the **deink**ed pulp. Moreover, the pulp itself becomes skinny in recycle process so that the thickness of the resultant paper is lowered. Thus, its opacity becomes low. Accordingly, if amount of the pulp in paper is reduced as well as the blending ratio of **deink**ed pulp is raised, the opacity and the brightness of the obtainable paper are lowered still more. Further, it is not preferable that opacity of obtained paper is reduced still more, if brightness of **deink**ed pulp which makes brightness low is raised by **deinking** and/or bleaching. (*emphasis added*)

Concerning the transesterification, Ikeda, Yasushi teaches the following:

> TABLE 1 Standard Standard Standard improved improved improved Lyotropic bulky value brightness opacity Compound No. Name of compounds degree (%) (g/cm.sup.3) point point A-1 Methylpolysiloxane 5.9 0.025 1.0 0.9 (Shin-Etsu silicone KF96A- 1000) A-2 Glycerol monolauryl ether 6.6 0.028 1.5 1.1 A-3 Stearic acid monoglyceride 5.7 0.026 1.5 1.0 A-4 Pentaerythritol stearate 5.2 0.028 1.4 1.6 (average degree of **transesterification** being 45 eguivalent-%) A-5 Sorbitan sesquioleate 5.4 0.023 1.3 1.4 A-6 Adduct to lauric acid 6.0 0.022 1.0 0.9 monoglyceride with 0.4 mole of PO (*emphasis added*)

Claims 1-4, and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamaguchi, Koji (US5672244).

Concerning the esterifying, trihydric alcohol, transesterification and the polyhydric alcohol, Hamaguchi, Koji teaches the following:

> The alkylene oxide adduct of an oil or fat to be used in the present invention can be obtained by a publicly known method, i.e., mixing the oil or fat with a monohydric or **polyhydric alcohol** (preferably **glycerol**), subjecting the mixture to trans**esterification** and then adding a given amount of the alkylene oxides thereto. It is also possible to obtain the alkylene oxide adduct of an oil or fat by mixing the oil or fat with **glycerol** and adding the alkylene oxides thereto under such conditions as to allow the occurrence of the trans**esterification**. (*emphasis added*)

Concerning the alkylene oxide, Hamaguchi, Koji teaches the following:

> It is preferable that the **alkylene oxide** adduct has **ethylene oxide** and **propylene oxide** added as the **alkylene oxide** at a molar ratio of ethylene oxide to **propylene oxide** of from 1/1 to 5/1. Alternatively, the alkylene oxide adduct has **ethylene oxide** and **propylene oxide** added as the alkylene oxide at a molar ratio of **ethylene oxide** to **propylene oxide** of from 1.5/1 to 4/1 and at a ratio of 50 to 120 mol of **ethylene oxide** per mol of the oil or fat. (*emphasis added*)

Concerning the carboxylic acid, fatty acid and the deinking, Hamaguchi, Koji teaches the following:

> Examples of the **fatty acid** and its salt to be used together with the **deinking** agent of the present invention include **fatty acid**s having 8 to 24 carbon atoms and salts thereof, more specifically those obtained from natural products such as caprylic, capric, lauric, palmitic, **stearic**, oleic and behenic acids, coconut oil **fatty acids**, soybean oil **fatty acid**s, rapeseed **fatty acids**, **tall oil fatty acids**, castor oil **fatty acid**s, beef **tallow fatty acids**, palm oil **fatty acid**s and fish oil **fatty acid**s each composed of the above-mentioned **fatty acids**, and hydrogenation products of these **fatty acids**; and synthetic **fatty acids**. Preferable examples of the salt include sodium and potassium salts. When employed together, the weight ratio of alkylene oxide adduct of an oil or fat to **fatty acid** or its salt is preferably from 30/70 to 70/30. (*emphasis added*)

Concerning the synthesis, Hamaguchi, Koji teaches the following:

> adding a deinking agent comprising a **reaction** product of an alkylene oxide adduct of an oil or fat, wherein said alkylene oxide adduct comprises ethylene oxide and propylene oxide added at a molar ratio of ethylene oxide to propylene oxide of from 1/1 to 5/1, and glycerol, and having a

> cloud point of 45.degree. to 90.degree. C., to at least one step in the deinking process, and conducting a floatation step at a temperature of from 40.degree. to 80.degree. C. (*emphasis added*)

Concerning the applicant's limitations drawn to the general formula of claim 1, as the prior art esters are formed in the same manner as the instant application and as the intended use is the same as the instant invention, such properties as those found in the general formula 1 would inherently be met.

### *Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory E. Webb whose telephone number is 571-272-1325. The examiner can normally be reached on 9:00-17:30 (m-f).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglass McGinty can be reached on (571)272-1029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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gew